

## CLAIMS

1. A system (13) for the quality status (Q) analysis of an access network (2) of a fixed network infrastructure (1), said access network (2) comprising a plurality of cables (6), a set thereof supporting broadband transmissive systems, said system comprising:
- an information acquisition module (14) configured for drawing static network information stored in first data sources (5) and dynamic network information, relating to said broadband transmissive systems, from second data sources (3); and
  - an information processing module (15) configured for:
    - collecting said static and dynamic network information from said information acquisition module (14); and
    - processing said static and dynamic network information to obtain at least one index ( $I_{st}$ ,  $I_{sg}$ ) representing said quality status (Q) of said access network (2).
2. An analysis system, as claimed in claim 1, characterised in that said dynamic network information comprise transmissive parameters associated to said broadband transmissive systems.
3. An analysis system, as claimed in claim 1 or 2, characterised in that said static network information comprise at least information about a structure of said access network (2).
4. An analysis system, as claimed in any of the claims 1-3, characterised in that said second data sources comprise network apparatuses (3), each network

apparatus (3) being configured for handling traffic coming from the cables (6) connected thereto.

5        5. An analysis system, as claimed in any of the claims 1-4, characterised in that said first data sources (5) comprise network inventories.

6. An analysis system, as claimed in any of the previous claims, characterised in that said information acquisition module (14) comprises an access interface to access said first data sources (5).

10        7. An analysis system, as claimed in any of the previous claims, characterised in that said information acquisition module (14) comprises a data access portion (18) configured to access said second data sources (3).

15        8. An analysis system, as claimed in claim 7, characterised in that said data access portion (18) comprises:

20        - a plurality of blocks of commands (21) requesting the measuring of said dynamic network information associated to said broadband transmissive systems, said blocks of command (21) being organised in parallel sessions 20, each session (20) being associated to one or more data sources (3) located in a specific portion of said fixed network infrastructure (1);

25        - a plurality of handlers (23), each handler (23) being configured to handle communication with said one or more data sources (3) by controlling communication channels (24) associated to said one or more data sources (3); and

30        - an adaptive controller (50) configured for selecting among said plurality of handlers (23) to one

whereto a specific block of commands (21) included in a specific session (20) is to be sent.

9. An analysis system, as claimed in claim 8, characterised in that each handler (23) is configured  
5 for handling:

- compliance with the maximum number of communication channels (24) which can be controlled simultaneously by a single data source (3);
- multiple access by multiple sessions 20 to each data  
10 source (3); and
- the priorities between said sessions (20).

10. An analysis system, as claimed in either claim 8 or 9, characterised in that at least a handler (23) comprises an apparatus handler (23a) configured for  
15 accessing the respective data source (3) directly, said apparatus handler (23a) including a channel dispatcher (26) to receive said blocks of commands (21) from said communication bus (22), queue them in appropriate queues (28) and send them to said data source (3)  
20 through the communication channels (24) managed by said data source (3).

11. An analysis system, as claimed in any of the claims 8-10, characterised in that said at least one handler (23) comprises an element manager handler (23b)  
25 configured for accessing one or more data source (3) through a management module (3a) of said data source (3), said element manager handler (23b) including:

- an apparatus dispatcher module (27) to receive blocks of commands (21) from said communication bus  
30 (22) and queue them in appropriate queues (28) differentiated by destination data source (3); and

- a channel dispatcher module (29) to check said queues (28) and, for each queue, determine the next block of commands (21) to be sent to the related management module (3a), through the communication channels (24) managed thereby.

12. An analysis system, as claimed in any of the claims 8-11, characterised in that said adaptive controller (50) comprises a list of handlers (23).

13. Analysis system, as claimed in any of the previous claims, characterised in that said index ( $I_{sg}$ ) is a geometric saturation index indicative of the degree of use of said cables (6) in terms of supported broadband transmissive systems.

14. Analysis system, as claimed in any of the previous claims, characterised in that said index ( $I_{st}$ ) is a transmissive saturation index indicative of the transmissive status of said cables (6) in terms of bit rate of the support broadband transmissive systems.

15. An analysis system, as claimed in any of the previous claims, characterised in that it comprises an interface (16) for accessing a network operator (40).

16. An analysis system, as claimed in any of the previous claims, characterised in that it comprises a database (17) in which are stored the results obtained by the analysis system (13).

17. A method for the quality status (Q) analysis of an access network (2) of a fixed network infrastructure (1), said access network (2) comprising a plurality of cables (6), a set thereof supporting broadband transmissive systems, said method comprising the steps of:

- accessing said first data sources (5) to draw static network information stored in said first data sources (5);

5       - accessing said second data sources (3) to draw dynamic network information associated to said broadband transmissive systems; and

10       - processing said static and dynamic network information to obtain at least one index ( $I_{st}$ ,  $I_{sg}$ ) representing said quality status (Q) of said access network (2).

18. A method as claimed in claim 17, characterised in that said step of remotely accessing said second data sources (3) to draw dynamic network information associated to said broadband transmissive systems  
15       comprises the steps of:

- generating a plurality of blocks of commands (21) requesting to measure said dynamic network information associated to said broadband transmissive systems;

20       - organising said blocks of commands (21) in parallel sessions (20), each session (20) being associated to one or more data sources (3) located in a specific portion of said fixed network infrastructure (1); and

25       - sending a specific block of commands (21) included in a specific session (20) to a specific data source (3) located in said specific portion of said fixed network infrastructure (1).

19. A qualification method, as claimed in claim 18  
30       characterised in that said step of sending a specific blocks of commands (21) included in a specific session (20) to a specific data source (3) located in said

specific portion of said fixed network infrastructure (1) comprises the steps of:

- querying a communication bus (22) configured for receiving said blocks of commands (21) and selecting  
5 among a plurality of communication handlers (23) the one whereto said specific block of commands (21) is to be sent, each handler (23) being configured to handle communication between said communication bus (22) and said one or more data sources (3) by controlling  
10 communication channels (24) managed by said data sources (3).

20. A qualification method, as claimed in any of the previous claims, characterised in that said steps of accessing first (5) and second (3) data sources  
15 comprise a step of repeatedly accessing said first (5) and second (3) data sources.

21. A qualification method, as claimed in claim 20, characterised in that said step of repeatedly accessing said first (5) and second (3) data sources  
20 comprises a step of periodically accessing said first (5) and second (3) data sources.

22. A fixed network infrastructure (1), comprising an access network (2) comprising a plurality of cables (6), a set thereof supporting broadband transmissive  
25 systems, characterised in that it is associated to a system (13) for analysing the quality status (Q) of said access network (2) implemented according to any of the claims 1-16.

23. A program for electronic computer, able to be  
30 loaded into the memory of at least an electronic computer and comprising program codes to implement the

system of any of the claims 1-16 when said program is executed by said electronic computer.